

# The PRISMA magnetic spectrometer: Hands-on session



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# Introduction

## Goal:

Go through the main steps of the analysis of PRISMA  
with the use of the AgataSelector

We will use data from EXP\_011:

$^{116}\text{Sn}$  @ 460 MeV on  $^{60}\text{Ni}$  (0.2 mg/cm<sup>2</sup>), Prisma at 20°, **multinucleon transfer**

Input data is output of a replay with AGATA merged with Prisma Raw.

```
raw_run_0046/Tree_0000.root  
raw_run_0046/Tree_0001.root  
raw_run_0046/Tree_0002.root  
raw_run_0046/Tree_0003.root  
raw_run_0046/Tree_0004.root  
raw_run_0046/Tree_0005.root
```

# Install AgataSelector

<https://baltig.infn.it/gamma/agataselector.git>

If you have never installed it, follow the instruction online at the link above

If you have it on your computer, for this session go to the `agataselector` folder and run:

```
git pull
```

Then recompile from the `build/`

```
make -jN(number of cores for compilation)
```

# Setting up analysis folder

## In your selector analysis folder:

### Data/

```
raw_run_0046/  
  Tree_0000.root
```

...

**Conf/** -> `path_to_agataselector/User/EXP/EXP_011/ConfPrismaWorkshop`

(usually link to EXP Conf)

```
prismaManager.conf  
enabled_histos.conf  
CUT/PRISMA/  
  RAW/  
  ANA/  
CALIBRATION/PRISMA/  
  RAW/  
  ANA/
```

**RunSelector** -> `path_to_agataselector/build/RunSelector`

(link to executable in build folder)

**selectorNewPrismaRaw.conf** -> `Conf/selectorNewPrismaRaw.conf`

### Out/

**Warning:** Don't forget to compile the agataselector

# selector.conf

```
#-----  
DETECTORS_PRESENT  
EUCLIDES          NO #      Euclides is present YES/NO  
DANTE             NO #      Dante is present YES/NO  
LABR              NO #      Labr is present YES/NO  
AGATA             NO #      Agata is present YES/NO  
SPIDER           NO #      Spider is present YES/NO  
PRISMA            YES #     Prisma is present YES/NO  
#-----
```

```
#-----  
REPLAY_CONF  
ENABLED_HISTOS    enabled_histos.conf #      File name with list of enabled histograms  
TREE_NAME        TreeMaster #      Input tree name  
SUM_FILE_PATTERN raw_sum #      Hadded file pattern  
OUT_FILE_PATTERN raw_run_ #      Output file pattern  
IN_SUB_PATH      /. #      Input sub path  
IN_PATH          ./Data #      Input path  
IN_FILE_PATTERN  raw_Tree_ #      Input file pattern  
OUT_PATH         ./Out #      Output path  
CONF_PATH        ./Conf #      Replay conf folder path  
REPLAY_DIR_PATTERN raw_run_ #      Replay directory pattern  
#-----
```

# selector.conf

```
PRISMA_CONF
DE_TYPE          0      # DE variable used for Z gates: 0 -> DE_AB, 1 -> DE_A, 2 -> RANGE(not implemented),
                  # 3 -> DE_A_corr vs E_res_corr, 4 -> Zed from Z_lines
CHARGE_TYPE      0      # DE variable used for Z gates: 0 -> IC_E vs RBeta, 1 -> IC_E/RBeta vs IC_E,
                  # 2 -> BETA vs X_FP, 3 -> CHARGE vs A/Q, 4 -> Charge_cal, 5 -> Q_float from Q_lines
COINC_W_LEFT     -1     # Time window left with the same type of det
COINC_W_RIGHT    1      # Time window right with with the same type of det
MAX_IC_ENE       7000   # Maximum IC energy in histograms
MAX_IC_dENE      5000   # Maximum IC energy of deltaE in histograms
AQ_NBINS         1000   # Number of bins in A over Q plots
MAX_AOVERQ       4      # Maximum A over Q in histograms
MIN_AOVERQ       2      # Minimum A over Q in histograms
MAX_RBETA        0.2    # Maximum beta in histograms
MIN_RBETA        0.1    # Minimum beta in histograms
TAC_OFFSET       0      # Offset for prisma tac
TAC_GAIN         1      # Gain for prisma tac
TOF_OFFSET       -8.5   ns Offset for recalibration of TOF
TOF_GAIN         1      # Gain for recalibration of TOF
PHI              0      deg Detector phi rotation for optimization purposes
ANGLE            20     deg Detector angle. For AGATA should be 180-prisma_angle
TIME_UNIT        10     ns Timestamp unit, should 10*ns
CFD_UNIT         0      ns Cfd units
MCP_ANGLE        135    deg Intrinsic theta rotation of MCP
Z_ROT_ANGLE      6      deg Z rotation angle
A_RANGE          48 70   # A for plots: min max
Z_RANGE          24 30   # Z for plots: min max
BROKEN_PPAC_CHANNELS 9 0 # Broken MWPPAC segments: 1 -> broken, 0-> not broken
BROKEN_IC_CHANNELS 2 1 # Broken ionization channel segments: 1 -> broken, 0-> not broken
#BROKEN_IC_CHANNELS 4 1 # Broken ionization channel segments: 1 -> broken, 0-> not broken
BETA_AVG         0 0 0.06 # Average Doppler correction for detector
#AQ_PLOTS        24 20 21 # A/Q conf for histos. Z qmin qmax
#AQ_PLOTS        25 21 22 # A/Q conf for histos. Z qmin qmax
#AQ_PLOTS        26 21 23 # A/Q conf for histos. Z qmin qmax
AQ_PLOTS         27 22 24 # A/Q conf for histos. Z qmin qmax
AQ_PLOTS         28 22 26 # A/Q conf for histos. Z qmin qmax
AQ_PLOTS         29 24 26 # A/Q conf for histos. Z qmin qmax
#AQ_PLOTS        30 24 25 # A/Q conf for histos. Z qmin qmax
```

# selector.conf

```
# Solver parameters
B_QUADRUPOLE      0.637796    T      Magnetic field of quadrupole
#B_DIPOLE         0.699570    T      Magnetic field of dipole
B_DIPOLE          0.7250229   T      Magnetic field of dipole
QUAD_LENGTH       460         mm     Length of quadrupole
QUAD_RADIUS       157         mm     Radius of quadrupole
TARGET_QUAD_DISTANCE 420         mm     Distance from target to quadrupole
OUT_DIPOLE_ANGLE  125         deg    Angle of dipole in degrees
IN_DIPOLE_ANGLE   20         deg    Angle of dipole in degrees
FP_TOLERANCE      1          mm     Tolerance of focal plane
TARGET_MCP_DISTANCE 250         mm     Distance from target to MCP
TARGET_DIPOLE_DISTANCE 1600        mm     Distance from target to dipole
DIPOLE_RADIUS     1200        mm     Radius of dipole
DIPOLE_HEIGHT     200         mm     Height of dipole
#
```

```
ANALYSIS_STAGES  ALL #
PRISMA_UNITS_CUTS NO #   Use prisma units for cuts
REQUIRE_ICOK    NO #   Require ionization chamber ok in analysis
REQUIRE_SIDEOK  NO #   Require ionization chamber side ok in analysis
REQUIRE_TRAJOK  NO #   Require trajectory ok in analysis
REQUIRE_TOFOK   NO #   Require time of flight ok in analysis
REQUIRE_MCPOK   NO #   Require mcp ok in analysis
ENABLE_TREE      NO #   Enable or disable detector TTree to save memory (strongly encouraged)
ENABLE_PREPROTREE YES #   Enable preprocessed tree
PRISMAFILTER_TKEL YES #   Use prismafilter TKEL instead of internal calculations
ENABLE_HISTS     YES #   Enable or disable detector histos to save memory
RAW_HISTS        NO #   Enable raw histos
ANA_HISTS        YES #   Enable ana histos
MISC_HISTS       NO #   Enable misc histos
AOVERQ_TEVO_HISTS NO #   Enable time evolution A over Q histos
AOVERQ_HISTS     YES #   Enable A over Q histos
MANAGER_PATH     ./Conf/prismaManager.conf # Prisma manager path
LUT              #      Lookup table path
PRISMA_IN_PATH   ./PrismaData # Prisma data input path (for update_prisma option only)
PRISMA_FILE_PATTERN Tree_ # Prisma data root file pattern (for update_prisma option only)
PRISMA_DIR_PATTERN run_ # Prisma data directory pattern (for update_prisma option only)
```

# prismaManager.conf

```
##### RAW CALIBRATIONS #####
TOF_CAL          /CALIBRATION/PRISMA/RAW/tof.cal
PPAC_THRESH      /CALIBRATION/PRISMA/RAW/ppac_tresh.cal
PPACPOS_CAL      /CALIBRATION/PRISMA/RAW/ppac_pos_cal.cal
ICE_CAL          /CALIBRATION/PRISMA/RAW/ice.cal
ICSIDES_CAL      /CALIBRATION/PRISMA/RAW/icsides.cal
ICDRIFT_CAL      /CALIBRATION/PRISMA/RAW/icdrift.cal
MCP_CAL          /CALIBRATION/PRISMA/RAW/mcp.cal
MCPROT_CAL       /CALIBRATION/PRISMA/RAW/mcprot.cal
MONITOR_CAL      /CALIBRATION/PRISMA/RAW/monitor.cal
##### RAW GATES #####
MCP_GATE         /CUT/PRISMA/RAW/MCP
PPAC_GATE        /CUT/PRISMA/RAW/PPACC
##### ANALYZED CALIBRATIONS #####
AOQ_CAL /CALIBRATION/PRISMA/ANA/aoverq_empty.cal
CHARGE_CAL /CALIBRATION/PRISMA/ANA/charge_empty.cal
ICE_CORR /CALIBRATION/PRISMA/ANA/icecorr_empty.cal
##### ANALYZED GATES #####
TOF_GATE        /CUT/PRISMA/ANA/TOF
Q_GATE          /CUT/PRISMA/ANA/CHARGE
Z_GATE          /CUT/PRISMA/ANA/ZED
AOQXMCP_CORR   /CUT/PRISMA/ANA/AOVERQ_XMCP
AOQYMCP_CORR   /CUT/PRISMA/ANA/AOVERQ_YMCP
AOQXFP_CORR    /CUT/PRISMA/ANA/AOVERQ_XFP
```

**Warning:** To avoid using parameters calibration, you should comment the lines in the indicated file

To avoid using gates, write the path of a folder that does not exist (**e.g. add an \_ at the end of the path**)

**Warning:** id 0 in **ICE\_CORR** should be set to **cal 0 0** to not have any effect



# enabled\_histos.conf

**Warning:** If you enable a lot of histograms from the .conf, this will fill your memory and the selector will crash

Use --mem\_check option to avoid crashes

Use --only\_enabled\_histos option to produce selected histograms

```
h_A_Nr
h_Z_Nr
h_q_Nr
m_goodEvtsStat
h_Beta
h_XFP
m_MCPX_MCPY_0
m_MCPTheta_MCPPhi
m_XFP_YFP
m_TOF_XFP_0
m_Z_N
m_ICDEA_ICE_tot_1
m_ICDEAB_ICE_tot_0
m_ICDEA_ICEres_corr_tot_3
h_Zed
h_Zfloat
m_Zfloat_ICEres_corr
#m_ICDEA_ICE_0
#m_ICDEA_ICE_1
#m_ICDEA_ICE_2
#m_ICDEA_ICE_3
#m_ICDEA_ICE_4
...
```

```
...
h_Aoverq_tot
m_Aoverq_tot
m_Aoverq_XFP_tot
m_Aoverq_Xmcp_tot
m_Aoverq_Ymcp_tot
h_Aoverq_24
h_Aoverq_25
h_Aoverq_26
h_Aoverq_27
h_Aoverq_28
h_Aoverq_29
h_Aoverq_30
#m_Aoverq_Xfp_24
#m_Aoverq_Xfp_25
#m_Aoverq_Xfp_26
#m_Aoverq_Xfp_27
m_Aoverq_Xfp_28
#m_Aoverq_Xfp_29
#m_Aoverq_Xfp_30
#m_Aoverq_Yfp_24
#m_Aoverq_Yfp_25
#m_Aoverq_Yfp_26
#m_Aoverq_Yfp_27
m_Aoverq_Yfp_28
#m_Aoverq_Yfp_29
#m_Aoverq_Yfp_30
#m_Aoverq_Xmcp_24
#m_Aoverq_Xmcp_25
#m_Aoverq_Xmcp_26
#m_Aoverq_Xmcp_27
m_Aoverq_Xmcp_28
...
```

```
...
h_TSmTS
m_TSmTS_TS
h_TSmTSgated
m_TSdiff_TS
h_cTime
h_cTime_gated
m_cTime_coreId
...
h_noDC_ion_60_28
h_DC_ion_60_28
h_DCBP_ion_60_28
#m_noDC_noDC_ion_60_28
#m_DC_DC_ion_60_28
#m_DCBP_DCBP_ion_60_28
#m_Theta_ThetaBP_ion_60_28
#m_Beta_BetaBP_ion_60_28
#m_noDC_theta_ion_60_28
#m_noDC_thetaBP_ion_60_28
#m_DC_theta_ion_60_28
#m_DCBP_theta_ion_60_28
#m_noDC_Qval_ion_60_28
#m_DC_Qval_ion_60_28
#m_DCBP_Qval_ion_60_28
#m_dTOF_EDC_ion_60_28
#m_colNr_EDC_ion_60_28
#m_Xfp_EDC_ion_60_28
#m_mcpX_EDC_ion_60_28
#m_mcpY_EDC_ion_60_28
...
```

**Warning:** Not to write the full file by yourself, you can run the selector once with 1 thread and it will be produced with all the histograms that are active

# Running the selector

```
./RunSelector --conf selectorNewPrismaRaw.conf --rm_partial --only_enabled_histos -  
--no_user_sel --mem_check --nrevts 200000 --nrthr 6 46
```

`--conf selectorNewPrismaRaw.conf`

**configuration** file for selector

`--rm_partial`

Delete **partial output** subfiles

`--only_enabled_histos`

Produce only selected histograms in **enabled\_histos.conf**

`--no_user_sel`

Avoid running **UserSelector** part (you might want to)

`--mem_check`

Check if you are filling your **memory**

`--nrevts 200000`

Limit number of **processed events** per subfile

`--nrthr 6`

Select number of **threads** to use

(Reduce if filling memory)

**Number of run(s)** to analyze

46

## Output

Out/sum-46\_6.root

If you want to print a new conf file with all the keywords and their default value, execute

```
./RunSelector --print_conf new_conf.conf
```

# MCP calibration

`prismaonlinepackage/script/MCP/MCP_cal.C`

```
MCP_cal("raw_Tree_0000.root", "wrong_mask.dat",  
"out", 1e7, "PathToConf/CUT/PRISMA/RAW/MCP/mcp  
__0__1.root")
```

When you are happy with the points and the calibration, press "s" on the canvas.

It will create `out_parameter.dat`:

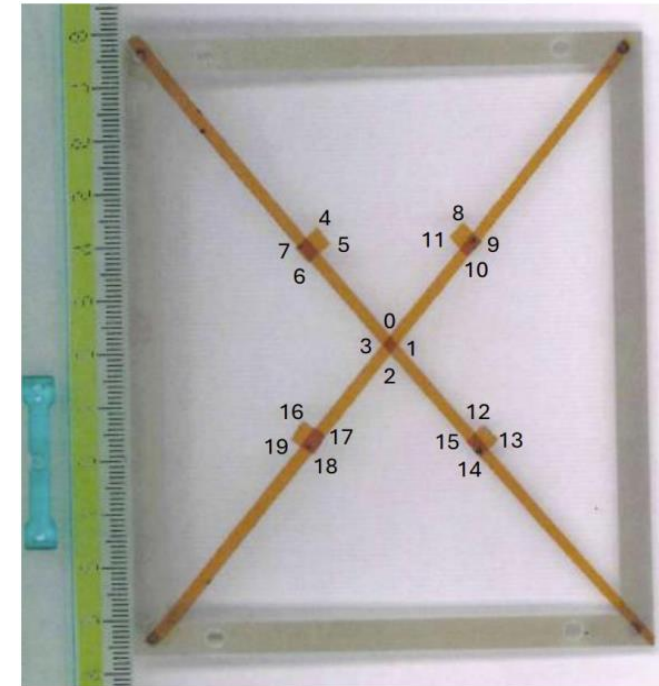
```
mcp_mix_x_0 = 1  
mcp_mix_x_1 = -0.0653546  
mcp_mix_y_0 = 0.0660451  
mcp_mix_y_1 = 1  
cal x: 99 0 3 51.4199 -0.0387309 2.1084e-06  
cal y: 99 0 2 -82.7449 0.0328323
```

Substitute the parameters in the `mcp.cal` and `mcp_rot.cal` (see yesterday's presentation)

- angle should be fixed to 0
- sum dist sq is the **average discrepancy** of the calibrated points from the references: if much higher than 1 (mm) **there is some issue** with the points

Wings up

#	X (mm)	Y (mm)
2	2.62	-2.07
3	1.04	-0.19
0	2.62	1.81
1	4.28	-0.26
4	-10.67	22.04
5	-8.02	18.74
6	-12.26	15.12
7	-14.82	18.07
8	16.45	22.48
9	20.07	18.71
10	17.37	15.79
11	13.75	19.66
12	19.80	-15.42
13	22.48	-18.27
14	18.76	-21.75
15	16.12	-18.77
16	-13.79	-14.12
17	-9.35	-17.22
18	-11.79	-20.67
19	-16.27	-17.77



**Warning:** flip in X between raw and calibrated!

# MCP calibration

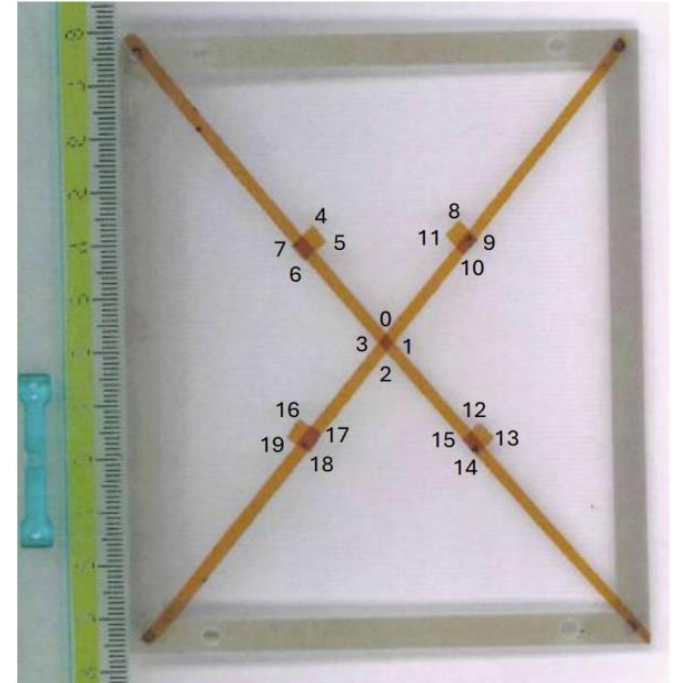
[prismaonlinepackage/script/MCP/MCP\\_cal.C](#)

## mcp.cal

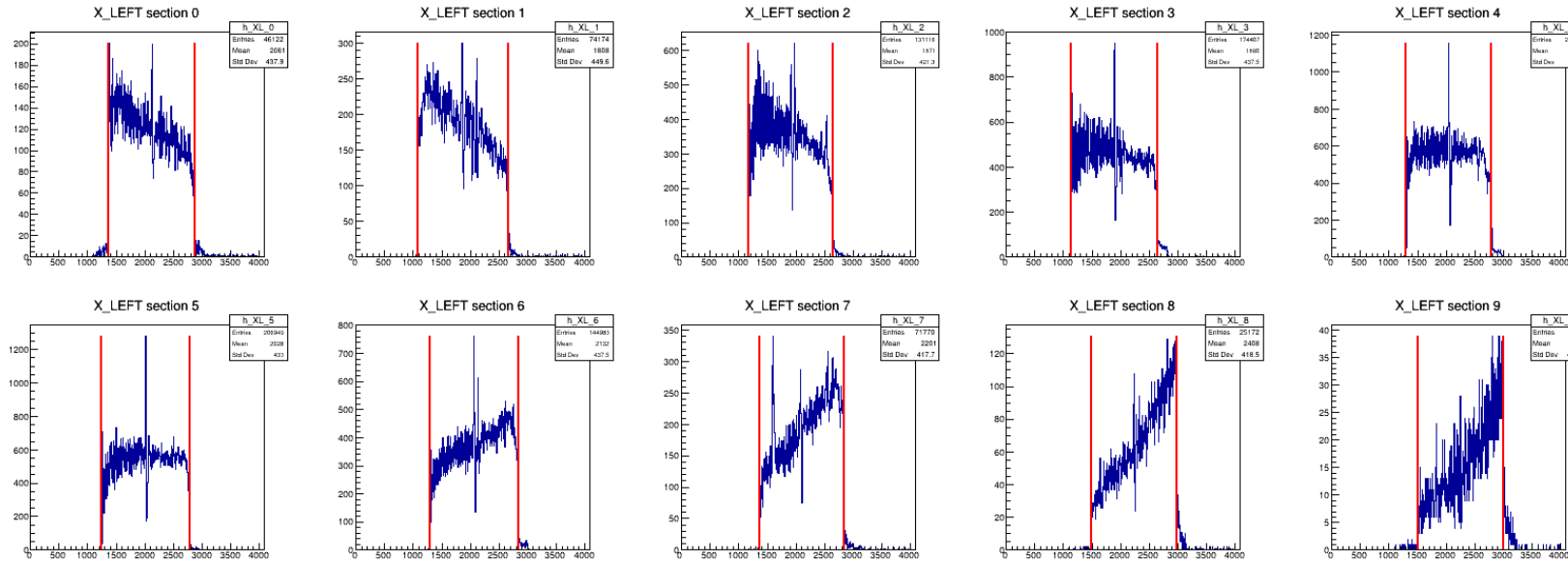
```
#MCP position calibration file
#X
id 0   cal 51.4199 -0.0387309 2.1084e-06 thr -10000 10000
#Y
id 1   cal -82.7449 0.0328323 thr -10000 10000
```

## mcp\_rot.cal

```
#Rotation matrix for MCP positions
# x0 x1 y0 y1
id 0 cal 1. -0.0653546 0.0660451 1.
```



# Check of PPAC sections

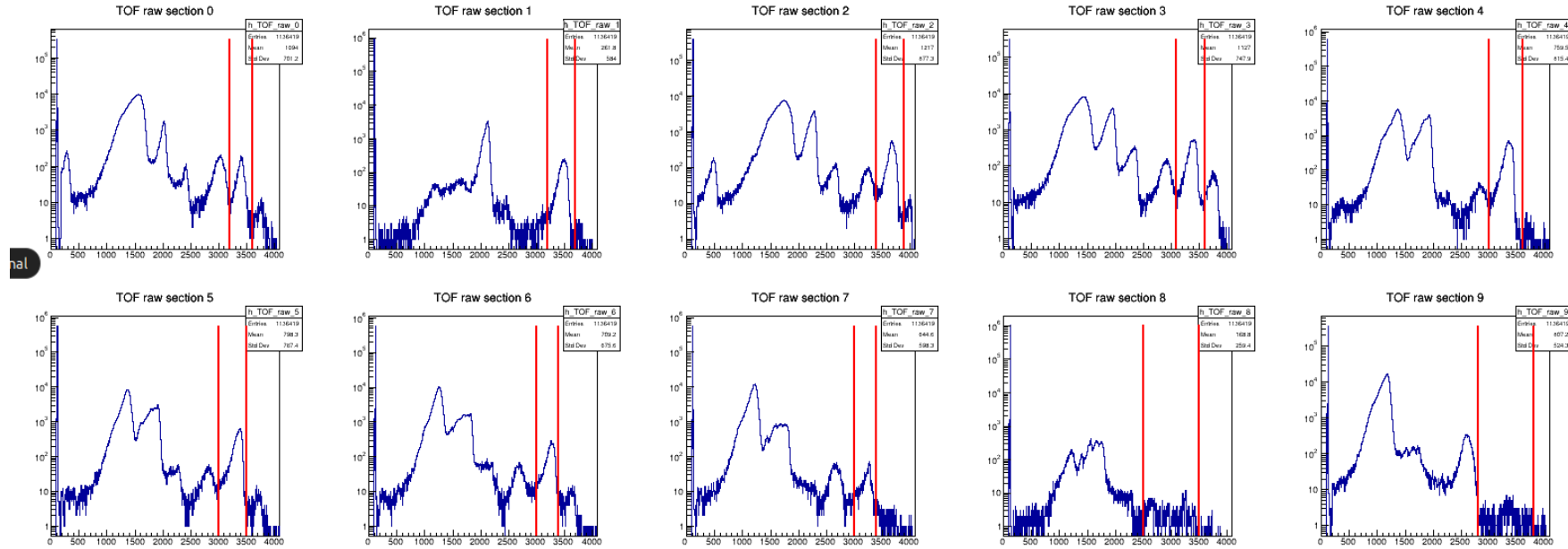


[prismaonlinepackage/script/CheckCal/CheckCalSelector.C](https://github.com/prismaonlinepackage/script/CheckCal/CheckCalSelector.C)

```
DrawPPAC_raw("Out/raw_sum-46_6.root", "pathTo/ppac_thresh.cal")  
->Thresholds  
DrawPPAC_ana("Out/raw_sum-46_6.root")  
->Calibration
```

Section **j** should be calibrated to **j\*100 mm** to **(j+1)\*100 mm**

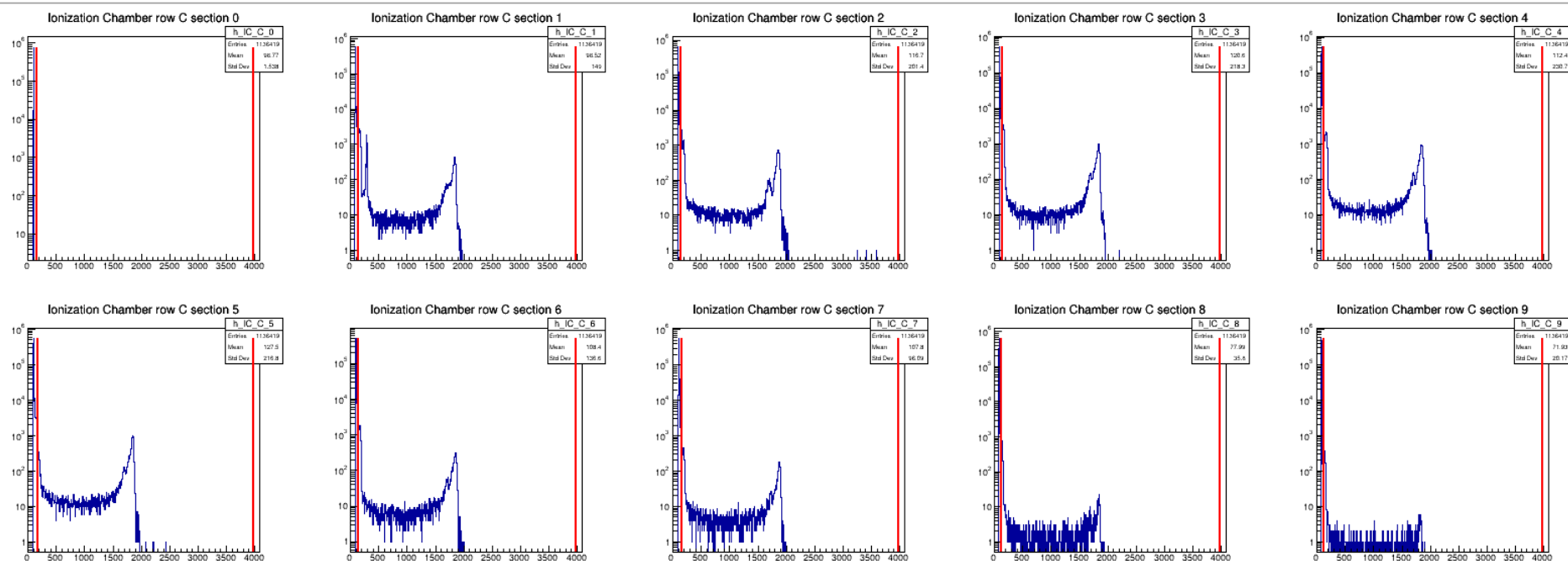
# Check of TOFs



`prismaonlinepackage/script/CheckCal/CheckCalSelector.C`

```
DrawToFs ("Out/raw_sum-46_6.root", "pathTo/tof.cal")  
->Thresholds
```

# Check of IC thresholds

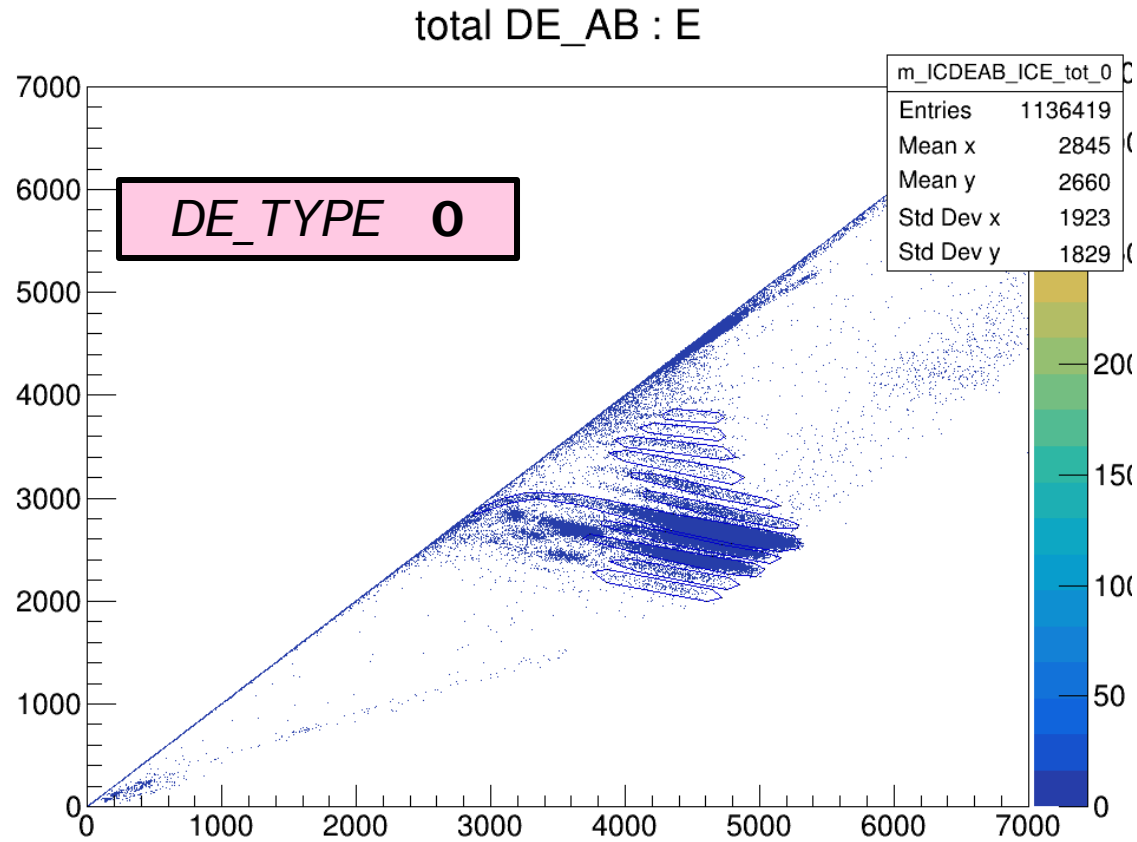


[prismaonlinepackage/script/CheckCal/CheckCalSelector.C](#)

```
DrawIonchPads ("Out/raw_sum-46_6.root", "pathTo/ice.cal")  
->Thresholds pads  
DrawSidePads ("Out/raw_sum-46_6.root", "pathTo/icsides.cal")  
->Thresholds side pads
```

# Z gates

```
./RunSelector --conf selectorNewPrismaRaw.conf --set_gates Out/raw_sum-46_6.root
```

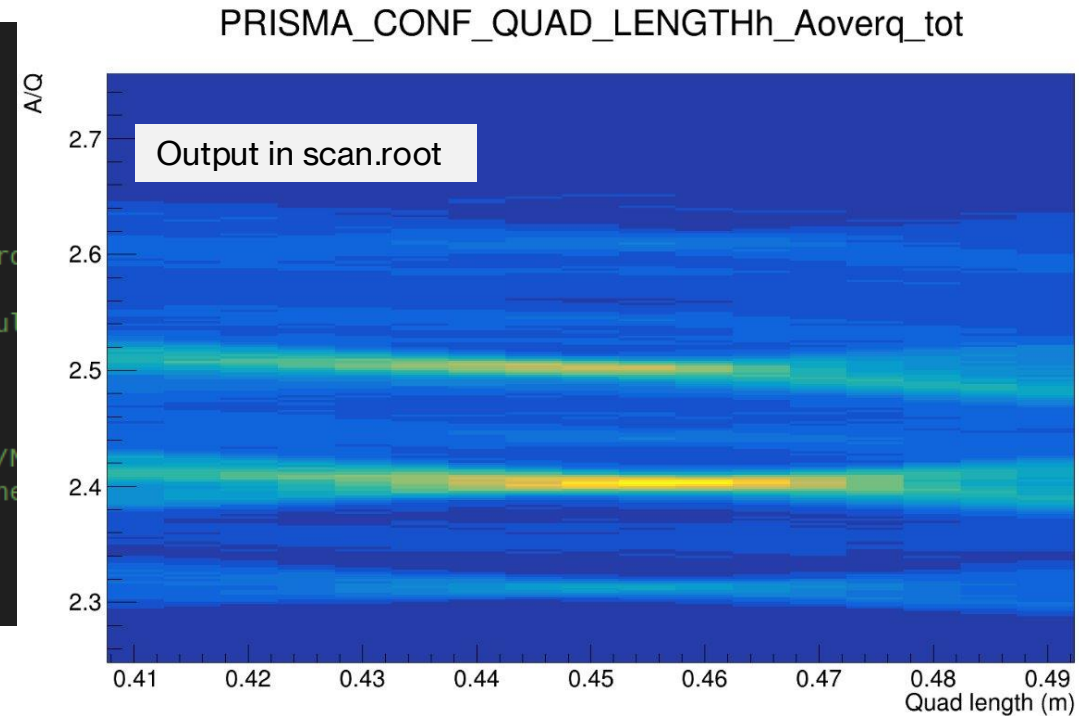


zed\_\_0\_\_28.root



# Optimize optical parameters

```
#
OPTIMIZER_CONF
TAIL          0  #          0: notail, 1: right, 2: left, 3: left+right, 4: symmetric
BKG_POL_ORDER      1  #          Polynomial order for background
MAX_CALLS        10 #          Maximum number of minimizer calls
PRINT_LEVEL       1  #          Minimizer verbosity
NON_CONVERGENCE_COST 5  #          Multiplier cost for fits that did not converge
SIGMA_WEIGHT       0.2 #          Figure of merit weight on sigma. 0 means only the centroid
TOLERANCE         0.1 #          Minimizer tolerance
PRECISION         0.01 #          Minimizer precision (likely leave 0 for optimally calculated)
VALID_ERRORS      NO  #          Performs error analysis (e.g. run Hesse for Minuit)
USE_INTERVALS     YES #          Use intervals in minimization (try what is best)
ONLY_SCAN         YES #          Avoids running minimizer algorithm (try what is best)
ALGORITHM         Simplex #          Name of algorithm (Nigrad, Simplex,...) see: tutorials/fit/Minuit
MINIMIZER         Minuit #          Name of minimizer (Minuit/Minuit2, Fumili, GLSMultiMin, Genfit)
FIT_PAR_FILE      parameters.dat #          Name of parameter file for fitter
ROOT_FILE         scan.root #          Name optimizer output file
LOG_FILE          log.txt #          Name of log file for minimizer
#Example for T05_05555T calibration
```



```
TRANSITION      Prisma   Ana/Aoverq/h_Aoverq_tot   2.5  0.2  0.0  1  #          Transition to optimize: |folder|spec_name|centroid|sigma|tail||bias|
PARAMETER        PRISMA_CONF QUAD_LENGTH   0.460 0.410 0.490 0.005 m   Parameter: |detector|par_name|initial_value|min|max|step|
SCAN             PRISMA_CONF QUAD_LENGTH   0.460 0.410 0.490 0.005 m   Parameter: |detector|par_name|initial_value|min|max|step|
```

```
./RunSelector --conf selectorNewPrismaRaw.conf --rm_partial --only_enabled_histos
--no_user_sel --mem_check --nrevts 200000 --nrthr 6 46 --optimize
```

**Hint:** Limit the number of events to make it faster!

**Hint:** enable only the relevant h\_Aoverq\_tot histogram for a faster processing

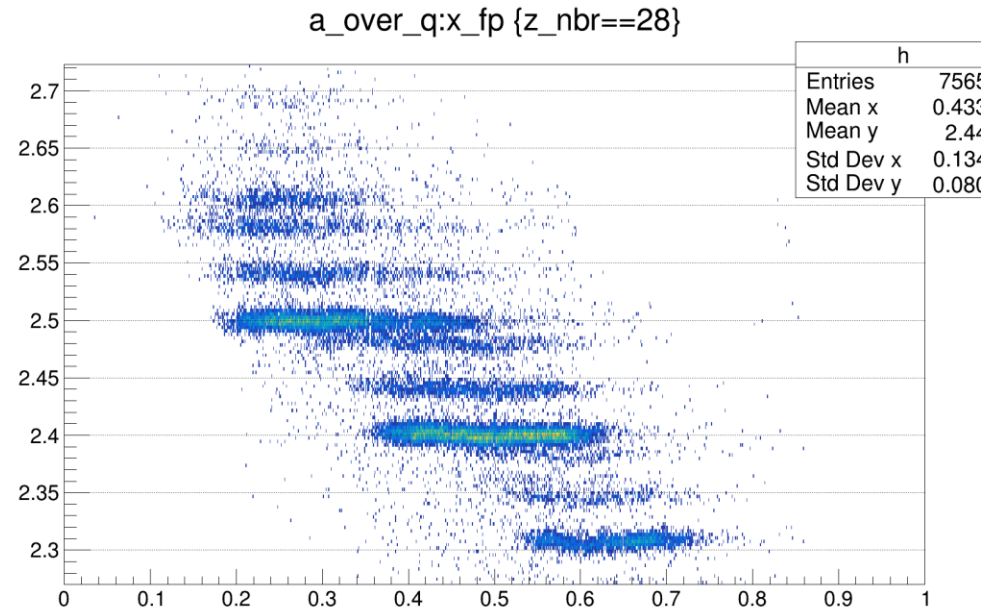
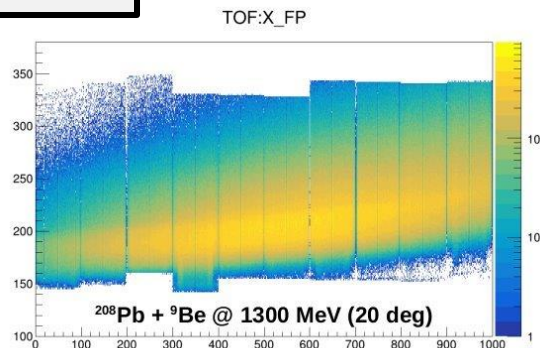
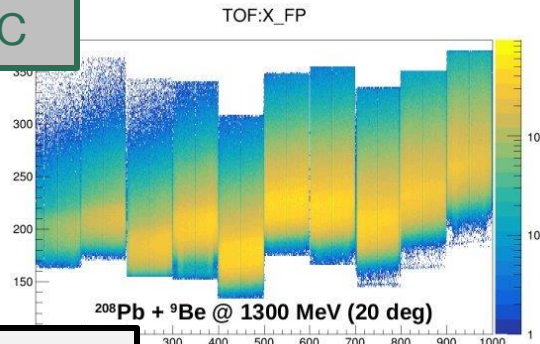
# Set TOF offsets

agataselector/Scripts/Prisma/AdjustTofOffset.C

```
void AdjustTofOffset(){
    double tofOffsets[10];
    tofOffsets[0] = 0.0;
    tofOffsets[1] = 0.0;
    tofOffsets[2] = 0.0;
    tofOffsets[3] = 0.0;
    tofOffsets[4] = 0.0;
    tofOffsets[5] = 0.0;
    tofOffsets[6] = 0.0;
    tofOffsets[7] = 0.0;
    tofOffsets[8] = 0.0;
    tofOffsets[9] = 0.0;

    double globalTofOffset = 0.0;
```

Modify the offsets



**Hint:** Elastic channel is  $A=60$ , most intense  $Q$  for  $^{60}\text{Ni}$  are 24, 25

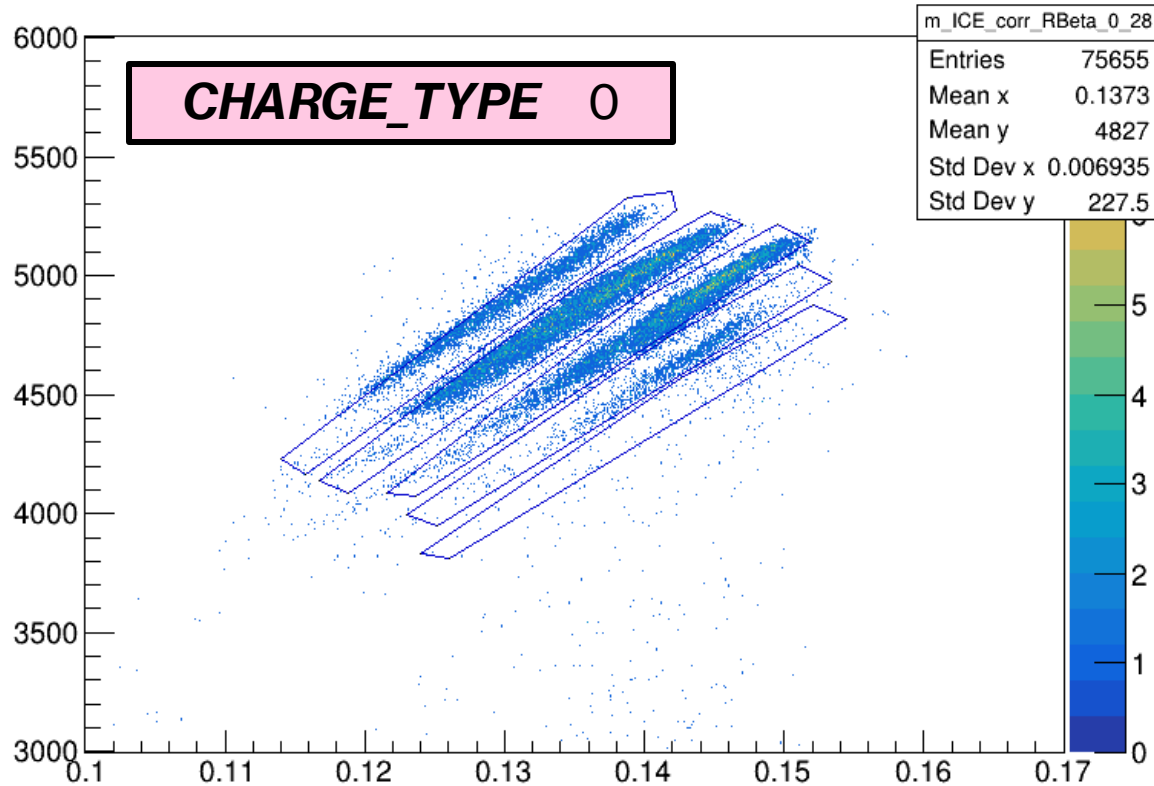
You have to produce the output AnalyzedTree

**ENABLE\_PREPROTREE YES**

```
root Out/raw_sum-46_6.root
>.x AdjustTofOffset.C
>AnalyzedTree->Draw("a_over_q:x_fp>>h(1000,0,1,1000,2,5)", "z_nbr==28", "col")
>AnalyzedTree->Draw("newAoq:x_fp>>h(1000,0,1,1000,2,5)", "z_nbr==28", "col")
```

# Q gates

```
./RunSelector --conf selectorNewPrismaRaw.conf --set_gates Out/raw_sum-46_6.root  
corrected IC E : R*Beta (Z = 28)
```



charge\_\_0\_28\_\_25.root

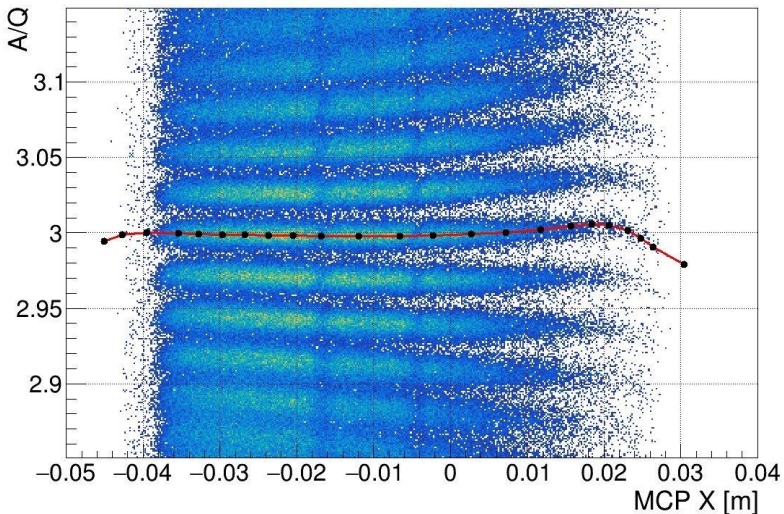
Do it at least for Z=26, 27, 28

# Aberration corrections

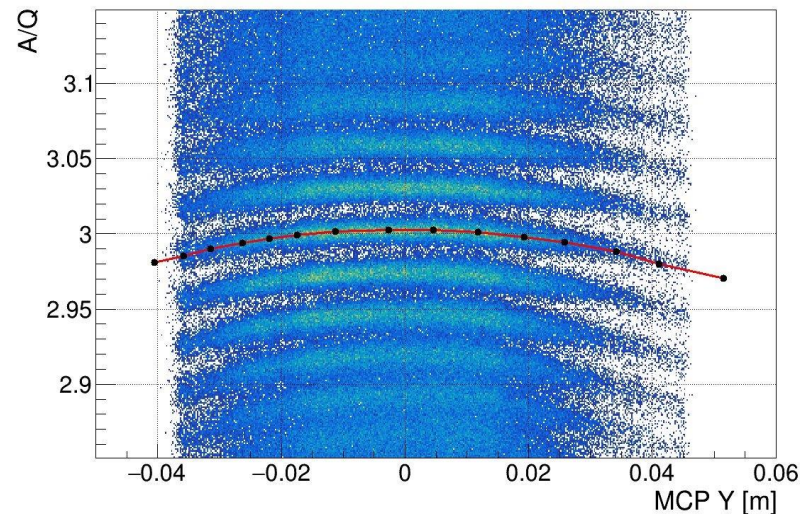
```
./RunSelector --conf selectorNewPrismaRaw.conf --set_gates Out/raw_sum-46_6.root
```

**Warning:** You can use the set\_gates option but it will ask you to do it for every Z,Q combination in the file

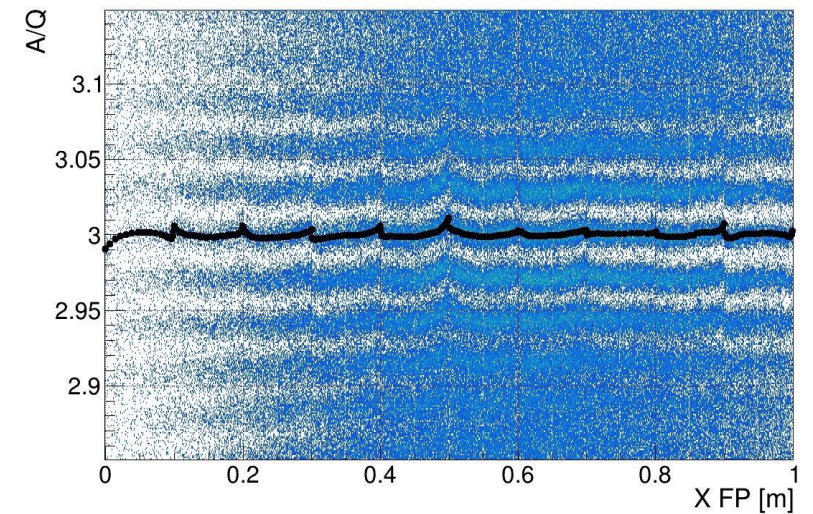
A/Q vs MCP X



A/Q vs MCP Y



A/Q vs X FP



aoverqxmcp\_\_0\_0\_\_300.root

You can apply the **same** correction to all events and see if some Z or Q need adjustments

# Mass calibration

Prismaonlinepackage/script/AoqCalibration/AoqCalibration.C

```
AoqCalibration("raw_sum-46_6.root")
```

aoq\_conf.dat

#Z	Qmin	Qmax	Acenter	FitPeaks?
27	22	24	59	1
28	22	25	60	1
29	24	25	63	1

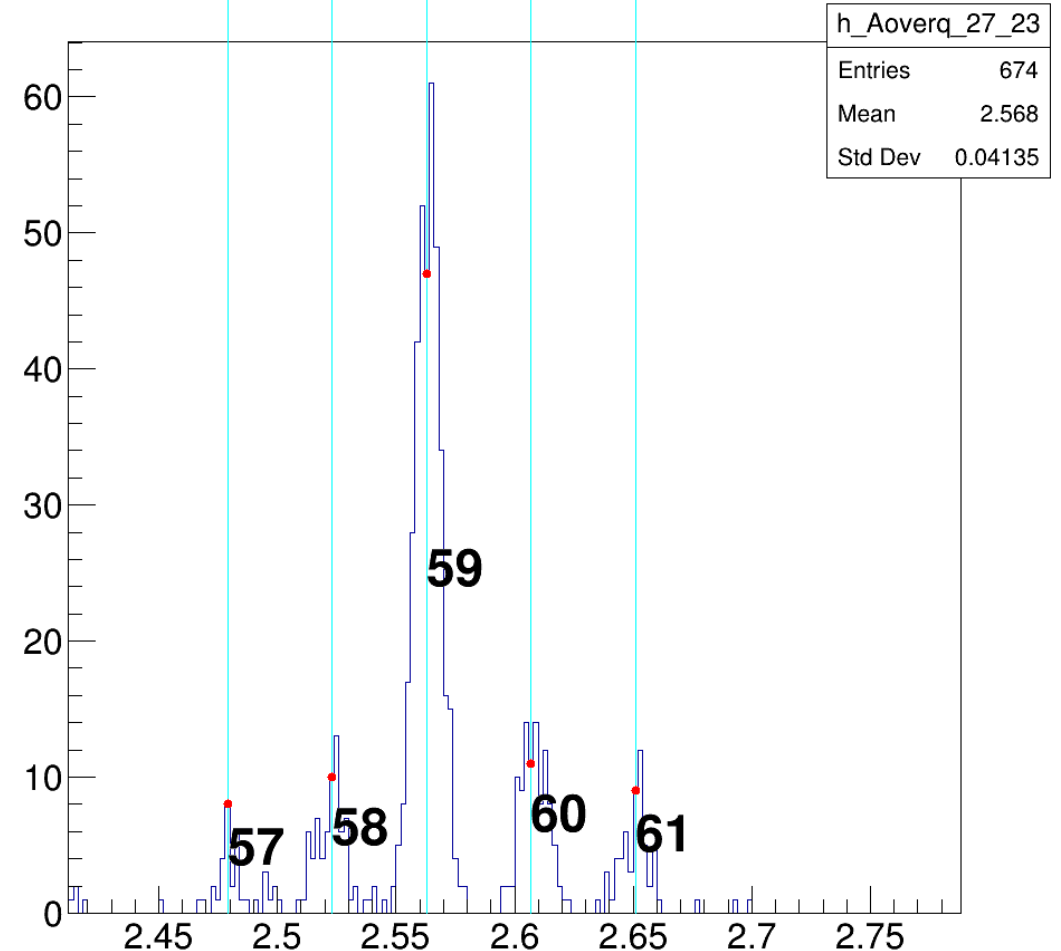
Mass of the highest peak in this Z

Creates 2 folders:

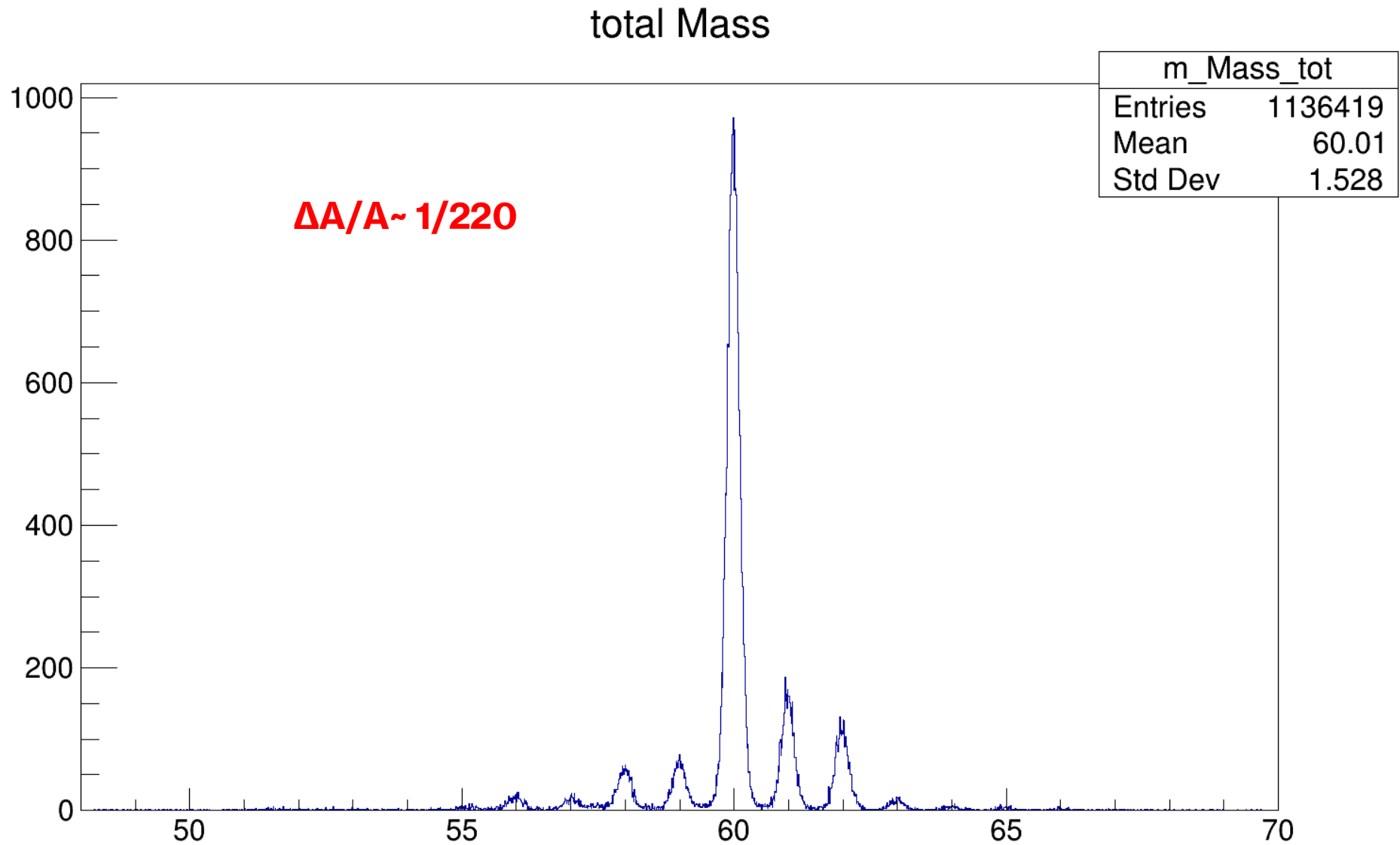
**aoqPeaks** -> Stores peaks positions and mass for every Z,Q examined

**aoqCalibrations** -> Saves computed calibration files (PrismaFilter format for now)

A/q (Z = 27, q = 23)



# Mass calibration

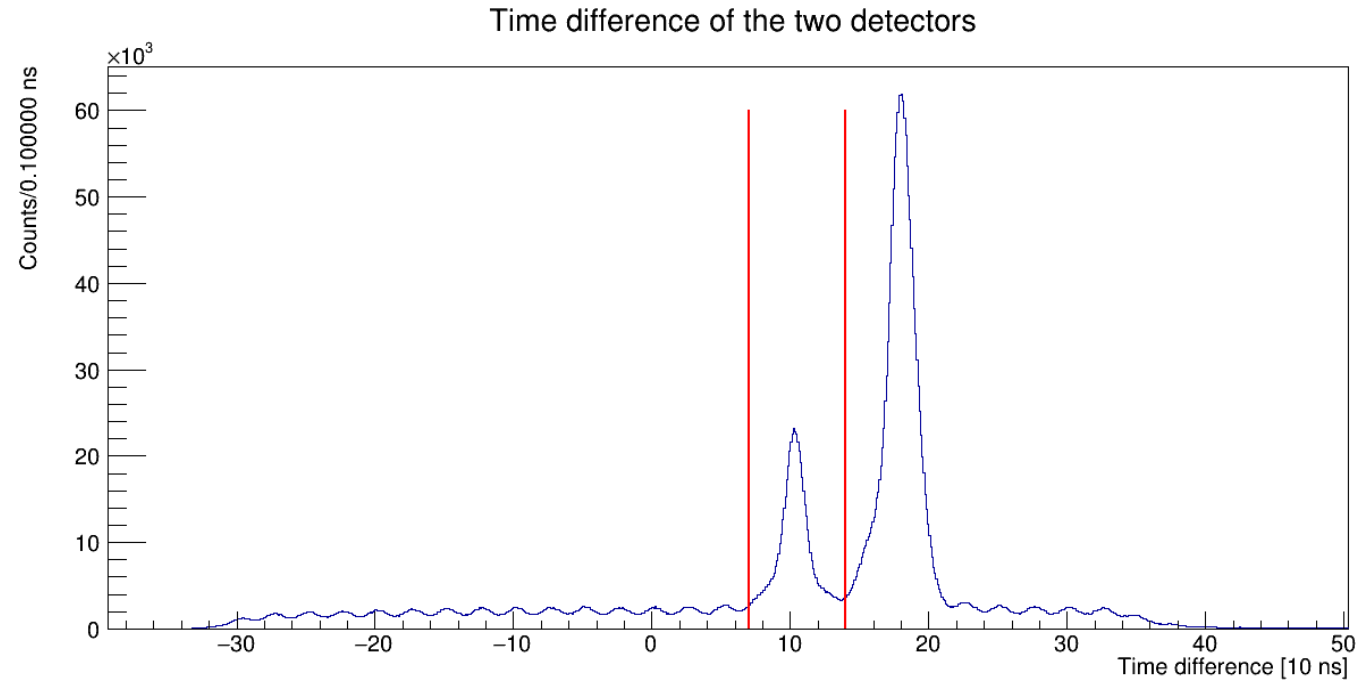


# Coincidence with AGATA

```
#-----  
DETECTORS_PRESENT  
EUCLIDES          NO #      Euclides is present YES/NO  
DANTE             NO #      Dante is present YES/NO  
LABR              NO #      Labr is present YES/NO  
AGATA             YES #     Agata is present YES/NO  
SPIDER           NO #      Spider is present YES/NO  
PRISMA            YES #     Prisma is present YES/NO  
#-----
```

```
REACTION_CONF  
ENERGY            460 MeV #  
BEAM              116 50 #  
TARGET            60 28 #  
ION               60 28 #  
ION               61 28 #  
ION               62 28 #  
ION               59 27 #  
#
```

```
#-----  
AGATAPRISMA_CONF  
COINC_W_LEFT      7 #      Time window left  
COINC_W_RIGHT     14 #     Time window right  
BP_FRAGMENT_POSITION  END_TARGET # Doppler correction position for binary partner  
FRAGMENT_POSITION  END_TARGET # Doppler correction position for detected ion  
#-----
```



# Coincidence with AGATA

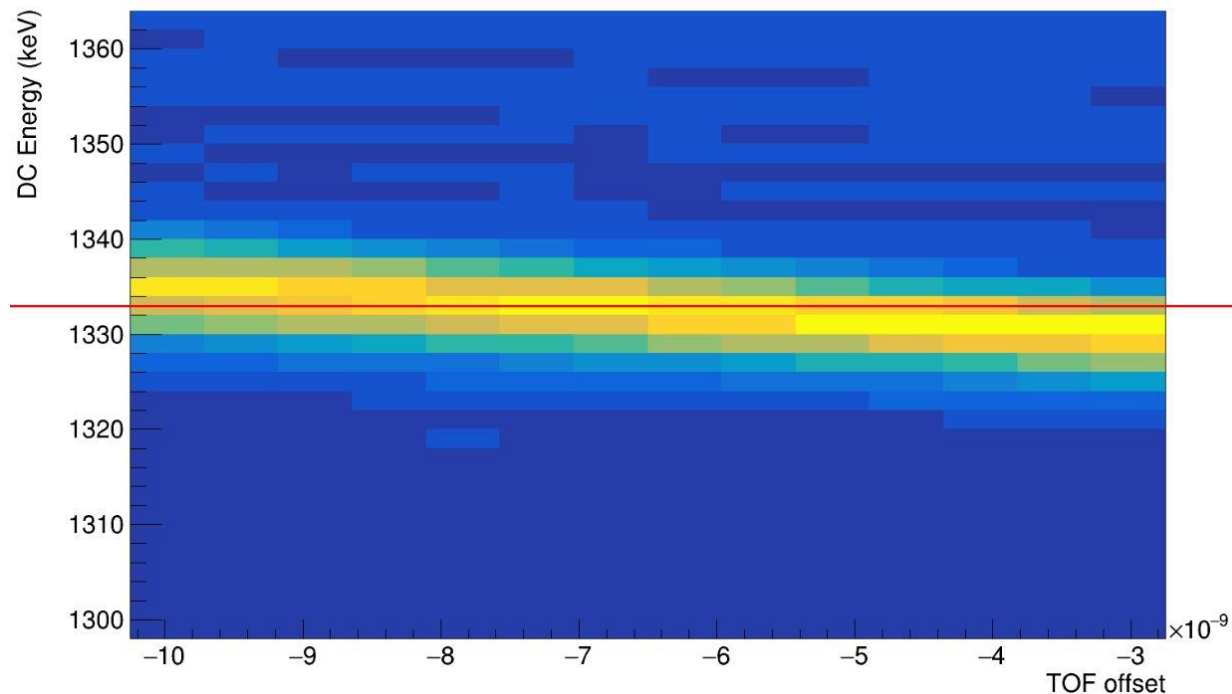
```

OPTIMIZER_CONF
TAIL          0 #          0: notail, 1: right, 2: left, 3: left+right
BKG_POL_ORDER 1 #          Polynomial order for background
MAX_CALLS    10 #          Maximum number of minimizer calls
PRINT_LEVEL   1 #          Minimizer verbosity
NON_CONVERGENCE_COST
SIGMA_WEIGHT  0.2 #          Balances centroid position and FWHM in FOM
                                0 only centroid, 1 only FWHM
TOLERANCE     0.1 #
PRECISION     0.01 #        Minimizer precision (likely leave default)
VALID_ERRORS   NO #        Performs error analysis (e.g. run Hesse)
USE_INTERVALS YES #        Use intervals in minimization (try what you can)
ONLY_SCAN     NO #          Avoids running minimizer algorithm
ALGORITHM     Simplex #     Name of algorithm (Migrad, Simplex, ...)
MINIMIZER     Minuit #     Name of minimizer (Minuit/Minuit2, Fortran)
FIT_PAR_FILE  parameters.dat # Name of parameter file for minimizer
ROOT_FILE     scan.root #   Name optimizer output file
LOG_FILE      log.txt #     Name of log file for minimizer
    
```

Balances centroid position and FWHM in FOM  
0 only centroid, 1 only FWHM

Avoids running minimizer algorithm

PRISMA\_CONF\_TOF\_OFFSET\_h\_DC\_ion\_60\_28



```

./RunSelector --conf selectorNewPrismaRaw.conf --rm_partial --only_enabled_histos -
-no_user_sel --mem_check --nrevts 200000 --nrthr 6 46 --optimize
    
```

TRANSITION	AgataPrisma	Z28/A60/h_DC_ion_60_28	1.17323	0.004	0.0	1
TRANSITION	AgataPrisma	Z28/A60/h_DC_ion_60_28	1.333	0.004	0.0	1
TRANSITION	AgataPrisma	Z28/A62/h_DC_ion_62_28	1.17298	0.004	0.0	1
PARAMETER	PRISMA_CONF	TOF_OFFSET	-7 -10 -3	0.5	ns	
SCAN	PRISMA_CONF	TOF_OFFSET	-7 -10 -3	0.5	ns	